

In the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

1 1. (Previously Presented) A method of time scale
2 modification of a digital audio signal comprising the steps of:
3 analyzing an input signal in a set of first equally spaced,
4 overlapping time windows having a first overlap amount S_a ;
5 selecting a base overlap S_s for output synthesis corresponding
6 to a desired time scale modification;
7 calculating a cross-correlation $R[k]$ for index value k between
8 overlapping frames for a range of overlaps between $S_s + k_{\min}$ to
9 $S_s + k_{\max}$ for only a fixed length overlap region less than an entire
10 overlapping region;
11 selecting a value K yielding the greatest cross-correlation
12 value $R[k]$;
13 synthesizing an output signal in a set of second equally
14 spaced, overlapping time windows having a second overlap amount
15 equal to $S_s + K$.

1 2. (Currently Amended) ~~The A method of claim 1, wherein time~~
2 ~~scale modification of a digital audio signal comprising the steps~~
3 ~~of:~~
4 analyzing an input signal in a set of first equally spaced,
5 overlapping time windows having a first overlap amount S_a ;
6 selecting a base overlap S_s for output synthesis corresponding
7 to a desired time scale modification;
8 said step of calculating the cross-correlation $R[k]$ for index
9 value k between overlapping frames for a range of overlaps between
10 $S_s + k_{\min}$ to $S_s + k_{\max}$ for only a fixed length overlap region less
11 than an entire overlapping region employs employing the equation

12
$$R[k] = \sum_{i=initial_x}^{final_x} sign\{y[mS_s + i + k]\} . sign\{x[mS_a + i]\}$$

13 where: $x[i]$ is the analysis of the input signal for index value i ;
14 $y[i]$ is a synthesis signal for the index value i ;
15 selecting a value K yielding the greatest cross-correlation
16 value $R[k]$;
17 synthesizing an output signal in a set of second equally
18 spaced, overlapping time windows having a second overlap amount
19 equal to $S_s + K$.

1 3. (Original) The method of claim 1, wherein:
2 said step of calculating the cross-correlation $R[k]$ employs
3 only a center half of the overlap region for $k = 0$.

1 4. (Previously Presented) A digital audio apparatus
2 comprising:
3 a source of a digital audio signal;
4 a digital signal processor connected to said source of a
5 digital audio signal programmed to perform time scale modification
6 on the digital audio signal by
7 analyzing an input signal in a set of first equally
8 spaced, overlapping time windows having a first overlap
9 amount,
10 selecting a base overlap S_s for output synthesis
11 corresponding to a desired time scale modification,
12 calculating a cross-correlation $R[k]$ for index value k
13 between overlapping frames for a range of overlaps between
14 $S_s + k_{min}$ to $S_s + k_{max}$ for only a fixed length overlap region
15 less than an entire overlapping region;
16 selecting a value K yielding the greatest
17 cross-correlation value $R[k]$,

18 synthesizing an output signal in a set of second equally
19 spaced, overlapping time windows having a second overlap
20 amount equal to $S_s + K$; and
21 an output device connected to the digital signal processor for
22 outputting the time scale modified digital audio signal.

1 5. (Currently Amended) ~~The A~~ digital audio apparatus of
2 ~~claim 4, wherein comprising:~~

3 a source of a digital audio signal;
4 a digital signal processor connected to said source of a
5 digital audio signal programmed to perform time scale modification
6 on the digital audio signal by

7 analyzing an input signal in a set of first equally
8 spaced, overlapping time windows having a first overlap
9 amount,

10 selecting a base overlap S_s for output synthesis
11 corresponding to a desired time scale modification,

12 ~~said digital signal processor is programmed to calculate~~
13 ~~the calculating a cross-correlation $R[k]$ for index value k~~
14 ~~between overlapping frames for a range of overlaps between~~
15 ~~$S_s + k_{\min}$ to $S_s + k_{\max}$ for only a fixed length overlap region~~
16 ~~less than an entire overlapping region employs employing the~~
17 equation

$$18 \quad R[k] = \sum_{i=initial_x}^{final_x} sign\{y[mS_s + i + k]\} sign\{x[mS_a + i]\}$$

19 where: $x[i]$ is the analysis of the input signal for index
20 value i ; $y[i]$ is a synthesis signal for the index value $i + k$,
21 selecting a value K yielding the greatest
22 cross-correlation value $R[k]$,

23 synthesizing an output signal in a set of second equally
24 spaced, overlapping time windows having a second overlap
25 amount equal to $S_s + K$; and
26 an output device connected to the digital signal processor for
27 outputting the time scale modified digital audio signal.

1 6. (Original) The digital audio apparatus of claim 4,
2 wherein:

3 said digital signal processor is programmed to calculate the
4 cross-correlation $R[k]$ employing only a center half of the overlap
5 region for $k = 0$.